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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 15

Application Number: 09/590,805
Filing Date: June 09, 2000
Appellant(s): BRADY ET AL.

MAILED

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GROUP 2600

Waayne S. Breyer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/01/2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: appellant's brief presents arguments relating to objections to the drawings. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP §§ 1002 and 1201.

The rest of appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because appellant's brief does not include a statement that this grouping of claims 1-2 and 4-7 and 22-25 does not stand or fall together and reasons in support thereof. Appellant does not argue and explain the separate patentability of each and every claim. 37 CFR 1.192(c)(7) clearly states that "Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable". Furthermore, AAPA, Kalnitsky and Murdock et al. teach all the limitations of the claims. None of the dependent claims introduce limitations which are not taught by AAPA, Kalnitsky and Murdock et al. Therefore, claims claims1-2 and 4-7 and 22-25 should stand or fall together.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,589,708	Kalnitsky	12-1996
5,748,412	Murdock et al.	5-1998
5,294,843	Tursky et al.	3-1994

.Applicant Admitted Prior Art (AAPA), figure 2, pages 1-4.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-2 and 4-7, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnitsky or Murdock et al. in view of AAPA.

Kalnitsky teaches in figure 2 and related text an integrated circuit comprising a first device and a second device (column 3, lines 33-48) electrically connected to one another (column 3, lines 44-46) wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device.

Although Kalnitsky does not explicitly state that the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, this feature is inherent in Kalnitsky's device for the following reasons. Soft transistors have lower threshold voltage and are thus more susceptible to ionizing radiation. Hard transistors, on the other, have higher threshold voltage and are thus less susceptible to ionizing radiation. The claimed limitations of two devices, wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device means that one device is softer or harder than the second device. Kalnitsky teaches two transistors, wherein one transistor is harder than the second transistor. Therefore, Kalnitsky teaches two devices, wherein the effective threshold

voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, as claimed..

Kalnitsky does not teach first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

Murdock et al. teach in figure 2 and related text an integrated circuit comprising a first device 30c (figure 3c) and a second device 34 (column 10, lines 26-29) electrically connected to one another (figure 2) wherein the effective threshold voltage of the first device 30c is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device 34 (column 10, lines-26-45).

Murdock et al. do not teach first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

AAPA teaches in figure 2 first and second devices comprising a first lead, a second lead, and a third lead, respectively, wherein the third leads are electrically connected to ground and the first leads are electrically connected to each other.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use first and second devices comprising a first lead, a second lead, and a third lead, respectively, wherein the third leads are electrically connected to ground, in Kalnitsky and Murdock et al.'s device, it order to operate the device. A device must include a voltage lead connection and a ground lead connection in order to

operate. A device must have an output lead in order to be able to communicate with other devices. Therefore, Kalnitsky and Murdock et al.'s device must include a first lead, a second lead, and a third lead, respectively, wherein the third leads are electrically connected to ground, as claimed.

Regarding claims 2 and 25, Kalnitsky teaches a first device comprises an n-type metal-oxide semiconductor field-effect transistor. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a first device comprises an n-type metal-oxide semiconductor field-effect transistor in Murdock and AAPA's device, in order to form a diode in a well known alternative method.

Regarding claims 4 and 5, prior art does not teach using the integrated circuit in a microprocessor that comprises a control sequencer coupled to an arithmetic logic unit, and in an arrangement of memory cells operatively coupled to an address decoder. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the integrated circuit in a microprocessor that comprises a control sequencer coupled to an arithmetic logic unit, and in an arrangement of memory cells operatively coupled to an address decoder in Kalnitsky, Murdock et al. and AAPA's device, in order to use the device in an application which requires a microprocessor that comprises a control sequencer coupled to an arithmetic logic unit, and an arrangement of memory cells operatively coupled to an address decoder. Note that a recitation of an intended use of the claimed invention must result in a structural difference between the

claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 6, AAPA teaches in figure 2 connecting the second lead of the first device to ground, the third lead of the first device to power, and the third lead of the second device to power. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect the second lead of the first device to ground, the third lead of the first device to power, and the third lead of the second device to power in Kalnitsky or Murdock et al.'s device, in order to be able to operate the device. The device would not operate without a power source.

Regarding claim 22, although Kalnitsky, Murdock et al. and AAPA do not explicitly state that upon exposure to a sufficient amount of ionizing radiation, one device turns on before the second device and thus affects operation of the second device, these features are inherent in the devices of Kalnitsky, Murdock et al. and AAPA, because soft devices turn on before regular devices, and hard devices turn on after regular devices. When one device is turned on, it naturally affects the operation of a second device connected thereto.

Regarding the claimed limitation of a second device being a utile device, AAPA teaches a second device being a utile device (page 7, lines 22-23). Regarding the claimed

limitation of a first device being a safeguard device, Murdock et al. teach a first device being a safeguard device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a second device as a utile device, and a first device in Kalnitsky or AAPA's device as a safeguard device, in order to use the device in an application, which requires a circuit protection. Note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claims 7, 23-24, the claimed limitations of a safeguard device being connected between a power/signal lead and ground, so that, when the safeguard device turns on, it shorts the power/signal lead to ground, are inherent in prior art's device for the following reasons. The device of Kalnitsky, Murdock et al. and AAPA is connected between a power and ground. Since one device turns on before the other device, the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device. When one device (the safeguard device) is turned on, continuous current flows between the source and the drain regions, resulting in the signal lead being short to ground.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnitsky, Murdock et al. and AAPA, as applied to claim 1 above, and further in view of Tursky et al.

Kalnitsky, Murdock et al. and AAPA teach substantially the entire claimed structure, as applied to claim 1 above, except the method of forming a soft diode. Tursky et al. teach forming a first device with a field oxide that has been implanted with a material that traps positive charge when the first device is exposed to ionizing radiation and the second device has not been implanted with the material (column 9, lines 31-51).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form a first device with a field oxide that has been implanted with a material that traps positive charge in prior art's device, in order to obtain a soft diode with a well known alternative method.

(11) Response to Argument

Appellant argues on page 10 that Kalnitsky does not teach two devices, having different radiation susceptibility, electrically connected to one another. Appellant further argues that the examiner uses the teachings of AAPA to connect Kalnitsky's first and second devices with no motivation to combine the references.

Kalnitsky teaches in figure 2 and related text an integrated circuit comprising a first device and a second device (column 3, lines 33-48). A biasing circuit is composed of the two devices (column 3, lines 44-46). Therefore, the two devices are electrically

connected to one another. AAPA was not used to teach an artisan to connect Kalnitsky's first and second devices together. AAPA was used to teach an artisan to connect a first lead, a second lead, and a third lead to first and second devices, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

Appellant argues on page 14 that the soft diode of Murdock et al. is not a "soft diode" as known in the art, and therefore, Murdock et al.'s devices do not teach the claimed limitations of an effective threshold voltage of the first device being more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device.

The phrases "soft diode" and "hard diode" are well known in the art. Soft diodes have lower threshold voltage and are thus more susceptible to ionizing radiation. Hard diodes, on the other, have higher threshold voltage and are thus less susceptible to ionizing radiation. Murdock et al. teach soft diodes 30 conduct at less than the operating voltage of sensor element 34. Murdock et al. further teach methods of raising the protection threshold voltage of the soft diodes (column 10, lines 29-31). The claimed limitations of two devices, wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, means that one device is softer or harder than the second device. Murdock et al. teach two devices, wherein one device (soft diode 30) is softer (has different effective threshold voltage) than second device 34.

Therefore, Murdock et al. teach two devices, wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, as claimed.

Appellant argues on page 15 that the soft diode of Murdock et al. should be compared to a "non soft diode" and not to a sensor.

Claim 1 recites the limitations of an effective threshold voltage of the first device being more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device. There is no requirement to compare the threshold voltages of two diodes. Soft diodes 30 of Murdock et al. are devices and sensor element 34 is a device. Therefore, soft diodes 30 can be compared to sensor element 34.

Appellant argues on page 15 that the term "device" is defined in the specification as a transistor, and Murdock et al. do not teach a transistor.

The limitation of a device being a transistor is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant argues on page 18 that Tursky et al. "say[s] nothing whatsoever about trapping positive charges".

Tursky et al. teach in column 9, lines 31-32 that a soft diode can be produced by protons. Protons are positive charges traps. Therefore, Tursky et al. teach forming a soft diode by implanting material, which traps positive charges.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

O.N.
December 26, 2002

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